INFORMATION MANAGEMENT FOR BUSY PRACTITIONERS

Advanced Search Features of PubMed

Editorial Note: Ms. Chapman has agreed to provide a series of brief, practical articles on how to effectively search the literature (Pubmed, Cochrane reviews etc.) in order for clinicians to stay up to date. This will not become a regular feature of the *Journal*.

The first article in this series (November, 2008) included an introduction to the PubMed database with basic search functions. This article is focused on advanced search features of PubMed that may assist you to perform more focused, complex, comprehensive or more refined searches of the healthcare literature.

Advanced PubMed Searching with MeSH:

MeSH is the National Library of Medicine's (NLM's) controlled vocabulary or subject heading list. It's used by indexers, who are subject analysts, and maintain the PubMed database, to reflect subject content of journal articles as they are published. Indexers typically select 10-12 MeSH terms to describe every indexed paper. When searching with MeSH terms you are not searching "freetext"; you're not simply looking for occurrences of words in the references. With MeSH terms, you will not have to think about word variations, word endings, plural or singular forms, or synonyms. You can use MeSH features to refine your searches with subheadings and chose, if you like, to select specific MeSH terms to be tagged as the major focus of references retrieved.

MeSH terms with subheadings:

To access *MeSH* terms, click on the drop-down menu beside the search box on the main PubMed page. Type in a term and the system will present you with a list of subject headings, with definitions, from which you can choose. This list of related MeSH terms may help you to find other relevant MeSH headings for your search strategy. Click on a specific *MeSH* term that is of interest to you. A new window will open up with the term you selected at the top and a list of subheadings below. From this display you can select specific *subheadings* to describe a particular aspect of a subject (diagnosis, prognosis, treatment etc.). Select as many subheadings as you like to focus your search results. The more subheadings you select the broader your search results will be.

Major MeSH terms & Explosion of MeSH terms:

Below the subheading list you will see a box where you can "Restrict Search To Major Topic Headings Only". This will narrow your search results so that the MeSH term you search is the major focus of references retrieved.

From this page you will also see a hierarchical arrangement of terms related to the MeSH term you selected. This display shows how your term relates to other MeSH terms. PubMed automatically *explodes* MeSH terms to include all narrower terms in the hierarchical list. But you can check the box beside "*Do Not Explode this term*" if you do not want to include the more specific subject headings indexed below your term in the list.

You can choose other subject headings from this hierarchical list to broaden or narrow your search results.

After you've selected MeSH terms, decided if your term should be a Major MeSH term, considered subheadings and explosions, click on the small box beside the term. Then click on the dropdown menu beside "Send to" and choose Send to Search Box with AND or OR. Once your MeSH terms are in the Search Box, finish searching your chosen MeSH term by clicking on "Search PubMed".

As with basic searching, you can combine MeSH terms together with connector words "AND", "OR and "NOT" using the "History" tab and combining search sets.

Viewing MeSH Headings in a relevant reference:

If you've found the perfect reference in PubMed you may want to take a look at how this paper was indexed with MeSH terms to

revise your search strategy to find other, similar (and relevant) references. You may also want to consider using the "Related Articles, Links". To display the MeSH terms for a reference click on the drop-down menu beside Display when you are looking at the reference in PubMed. Choose the "citation" format and the MeSH terms chosen by indexers will be listed. Revise your search strategy by searching for other MeSH terms in the MeSH database.

PubMed's Clinical Queries for quick searches for clinical problems:

PubMed's *Clinical Queries* are pre-programmed search strategies for effective PubMed searching of clinical problems. Click on *Clinical Queries* on the blue left sidebar from the main PubMed page. Select one of the three options. *Search by Clinical Study Category* allows you to narrow your search to etiology, diagnosis, therapy or prognosis. *Find Systematic Reviews* helps you to find systematic reviews, meta-analyses, reviews of clinical trials, evidence-based medicine, consensus development conferences or guidelines. *Medical Genetic Searches* finds references related to various topics in medical genetics with specific filters to focus your search results.

Automatic email updates of searches / saving search strategies:

PubMed's *My NCBI* feature allows you to save your search strategy (to be run at a later time) and/or setup automatic updates of your search strategy. This is a wonderful service especially if you are working on a literature search which is part of an ongoing project. You can save the search strategy for every PubMed search that you do to run it again at your convenience or automatically have the search run for you on a daily, weekly, or monthly basis, with results sent to you by email. To register, click on *My NCBI* in the upper right hand corner of the main PubMed page. Sign-in to My NCBI when you access PubMed every time and when you do a search a button will appear beside the search box to allow you to "Save Search". Click there to save your search strategy or set up automatic search updates.

For additional information on advanced PubMed features look at the blue left sidebar of the main PubMed screen for Overview, Help, FAQs and an online Tutorial.

Darlene Chapman MLIS
Manager, Information Services, IWK Health Centre, Halifax, Nova Scotia